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**Bioterrorism and Food Security: Issues and Challenges Conference**

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### **Risk of Bioterrorism: Issues and Challenges**

The Center for Disease Control and Prevention defines bioterrorism as “intentional or threatened use of viruses, bacteria, fungi, or toxins from living organisms to produce death or disease in humans, animals, or plants.” Agroterrorism can be defined by expanding this definition to include “Intentional or threatened use of chemicals against food or animals. Or intentional or threatened use of explosives to disrupt agricultural production or supplies of food. The purpose of the act or threat is to intimidate or coerce a government or civilian population.”

**There is potential for risk at each stage of the food supply chain (inputs, production, processing, storage and distribution, and retail) and we must attempt to determine the risk and consequence of a bioterrorist attack at each stage. The three components of risk analysis are risk assessment, risk management, and risk communication.** Under risk assessment, we ask three questions: 1) What can go wrong? 2) How likely is that event to happen? and 3) What are the consequences if it does occur? Under risk management, we must decide what to do about the risk. Risk communication involves informing the public about the risk, which sometimes entails warning the public and at other times involves reassuring the public.

Examples of biological risks include foreign animal diseases such as foot-and-mouth disease, classical swine fever, and exotic newcastle disease; foreign plant pests or diseases such as citrus canker, soybean rust, karnal bunt, and black stem rust; and foodborne disease such as *E. coli* O157:H7, *Listeria monocytogenes*, and *Salmonella*. There are also ecological risks from foreign plant invaders, foreign animal invaders, and possible environmental degradation.

**Economic impacts of bioterrorism include direct losses of crops, livestock, and assets; secondary losses in upstream and downstream markets; lost export markets; significant price effects; and a reduction of economic growth caused from a reallocation of resources. Other effects of bioterrorism include environmental problems and social and political impacts such as reduced confidence in government, reduced confidence in food safety, and social disruption resulting from fear and xenophobia.**

We face a number of challenges. We must think like a terrorist (risk assessment asks what can go wrong); apply experience with conventional risk analysis to bioterrorism; build communications, coordination, and education systems; improve monitoring, detection, and forensics; research means of protection and risk mitigation; prepare for economic shocks; determine appropriate roles for government and private sector; and preserve freedom and an open society.